

**APPARATUS, SYSTEM AND METHOD FOR DETECTING A LOSS OF KEY
STREAM SYNCHRONIZATION IN A COMMUNICATION SYSTEM**

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ABSTRACT OF THE DISCLOSURE

An apparatus, system and method provides an out-of-synchronization
detection by using a network layer checksum. A process operating at an upper layer
10 verifies that a checksum embedded in a network layer header is correct before
encrypting and transmitting a data packet containing the header and a payload. The
data packet is received through a wireless communication channel at a receiver and
decrypted. A calculated checksum is calculated on the received payload at the
receiver and compared to the received checksum embedded in the header. A key
15 stream used at the receiver for decrypting the received encrypted data packets is
determined to be out of synchronization with a key stream used at the transmitter to
encrypt the data packets if the calculated checksum is not equal to the network layer
checksum.

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